

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Masatoshi NAKANISHI et al.

Serial No.: 09/409,680

Group Art Unit: 1752

Filed: September 30, 1999

Examiner: Thorl Chea

For: PHOTOGRAPHIC SOLID FINE-GRAIN DISPERSION, METHOD FOR
PREPARING THE SAME, AND SILVER HALIDE PHOTOGRAPHIC
LIGHT-SENSITIVE MATERIAL

DECLARATION UNDER 37 C.F.R. § 1.132

Honorable Commissioner of Patents
and Trademarks
Washington, D.C. 20231

Sir:

I, Masatoshi NAKANISHI, hereby declare and state that:

1. I am a citizen of Japan residing at c/o Fuji Photo Film
Co., Ltd., No. 210 Nakanuma, Minami-ashigara-shi, Kanagawa-ken,
Japan.

I received a Master's degree from Kyoto University,
Graduate School of Agriculture, Department of Agricultural
Chemistry in March of 1987.

Since April, 1987, I have been employed by Fuji Photo Film
Co., Ltd. and have been engaged in research and development at
the Ashigara laboratories of the said company. From 1987 to 1991,
I engaged in analysis and research of photographic materials.
From 1992 to August of 2000, I engaged in research of an elemental
technology on dispersion of organic compounds. From September
of 2000 to date, I have been engaged in analysis and research of



photographic materials.

I am one of the joint inventors of the subject matter of the United States Patent Application Serial No. 09/409,680, filed on September 30, 1999, and am thus intimately familiar with the contents of the application, its prosecution before the United States Patent & Trademark Office, and the references cited therein.

2. I have studied the contents of the cited Czekai et al.'s U.S. Patent No. 5,500,331, Czekai et al.'s U.S. Patent No. 5,478,705, Lobo et al.'s U.S. Patent No. 5,589,322, Scaringe et al.'s U.S. Patent No. 5,750,323, Canepa et al.'s U.S. Patent No. 4,620,673, Bishop et al.'s U.S. Patent No. 5,474,237, and Inkyo et al.'s U.S. Patent No. 5,882,246.

3. To show the superiority of the present invention, the following tests were conducted, by me or under my supervision:

Test

A solid fine-grain dispersion Sample S-19 was prepared in the same manner as Sample S-3 in Example 1 of the specification of the present application, except that the media was changed to the polystyrene media used in Sample I-3 in Example 1 of Czekai et al.'s U.S. Patent No. 5,500,331 (Czekai'331).

Further, a solid fine-grain dispersion Sample S-20 was prepared in the same manner as Sample S-3 in Example 1 of the specification of the present application, except that the media was changed to the polystyrene media used in Sample 3 in Example

1 of Czakai et al.'s U.S. Patent No. 5,478,705 (Czekai '705).

The conditions and properties of the thus-obtained solid fine-grain dispersions are shown in Table A below.

Further, for reference, the conditions and properties of Sample S-7, shown in Tables 2 and 3 in the specification of the present application, were excerpted and again shown in Table A below.

Table A

Sample	Media material	Bulk density (g/cm ³)	Vickers Hardness (MPa)	Average size of media (mm)	Average residence time (min)	Average grain size of dispersion (μm)	Remarks
S-19	Polystyrene	ca. 1.12 ^{*1}	ca. 20 ^{*2}	0.05	800	2	Czekai' 331
S-20	Polystyrene	ca. 1.12 ^{*1}	ca. 20 ^{*2}	0.5	810	2	Czekai' 705
S-7	yttria-doped zirconia	6.0	14,000	0.3	22	0.29	This invention

- *1 The bulk density of polystyrene was that according to the description of "KIRK-OTHEMER CONCISE ENCYCLOPEDIA OF CHEMICAL TECHNOLOGY", (A Wiley-Interscience publication, 1985), page 1115, whose cover, colophon, and page 1115 are attached as Exhibit A hereto. The largest value mentioned was picked up from the description.
- *2 The Vickers Hardness of polystyrene was that according to the description of "Effect of γ-Irradiation on Hardness of Polymers", Indian Journal of Pure & Applied Physics, Vol. 23, February 1985, pp.103-104, which is attached as Exhibit B hereto. From Fig. 1 on page 103, the Vickers hardness of a polystyrene is about 20 kg/mm² (= 20 MPa) at the largest.

As is apparent from the results shown in Table A, the dispersion Sample S-7 was obtained in a far shorter time but with smaller grain size, in comparison with Samples S-19 and S-20.

Specifically, in S-19 and S-20, both of which utilized polystyrene resin that had smaller bulk density and Vickers hardness as a media, the sizes of obtained grains were about 10 times the size of the grains obtained by using the media according to the present invention.

Further, the average residence time of Sample S-7 was 22 min, much shorter than that of Samples S-19 and S-20 (800 min and 810 min, respectively).

Therefore, the use of the media according to the present invention, which had a specific size and specific hardness, allowed obtaining a fine dispersion with high dispersion efficiency.

The data already of record in the specification and the supplemental data submitted herewith demonstrate unexpectedly superior results of the claimed photographic solid fine-grain dispersion and method of preparing the same over those of the cited prior art.

4. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or

imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: December 20, 2000

Masatoshi
Nakanishi
Masatoshi NAKANISHI